

## Writing/Speaking Support for 20.109

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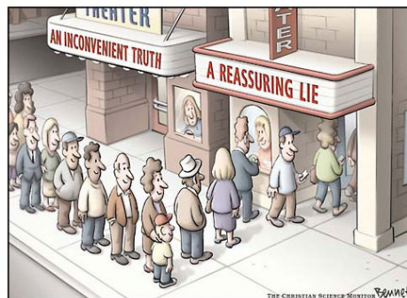
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## Getting to know you: Two truths and one lie

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- Write three statements about yourself, two of them true and one a lie.



## Getting to know you, part 2: Letter to Atissa, Neal, and Linda

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- ❑ What have been your experiences with scientific writing (e.g., lab reports, research articles, reviews)? With other writing tasks?
  - ❑ What have been your experiences with giving oral presentations (whether scientific or not)?
  - ❑ How would you describe yourself as a writer? As a public speaker?
  - ❑ What are your writing/speaking goals for 20.109?
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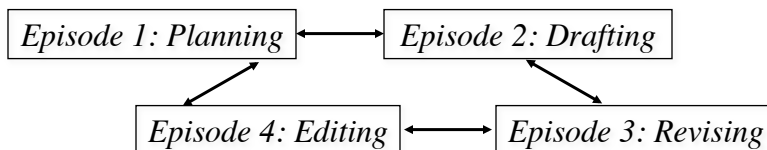
## Modeling the writing process lets us know at which points we encounter trouble.

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### Goals/Questions for the Writer

What do I know about my topic?  
What is my purpose for writing?  
Who are my intended readers and how much do they know about my topic?  
How is this task like others I have had before?  
What structure will work best for my topic?



## Effective writers are able to self-monitor their composing strategies

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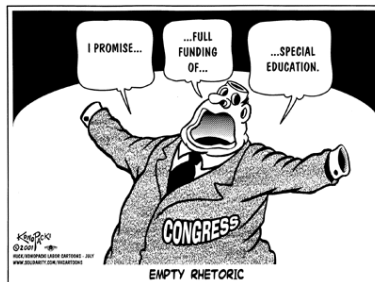


1. *Declarative Knowledge*: Knowing what strategies are available
2. *Procedural Knowledge*: Knowing how to use a strategy.
3. *Conditional Knowledge*: Knowing how and when to use a strategy.

The goal is to develop all three types of knowledge about each phase of the writing process.

## Scientific writers need to control the rhetoric of scientific writing.

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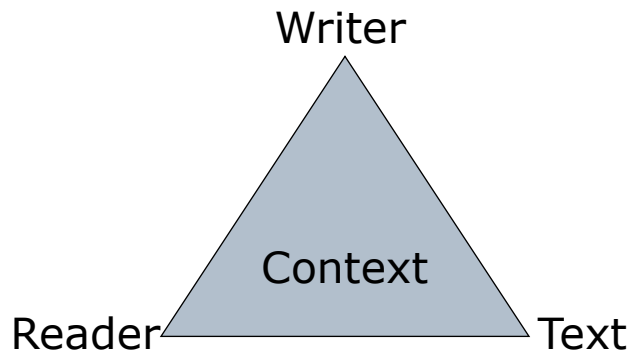


According to Aristotle, rhetoric is “the art of finding in any given case the available means of persuasion.”

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Any writing act can be described in terms of rhetorical triangles.

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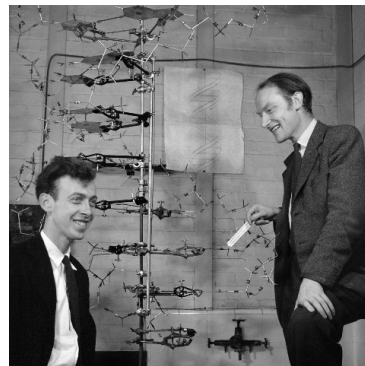
Writers balance the relationship between themselves, their texts, their readers, and the context in which this balancing act takes place.

The goal of scientific writing is to court your audience.

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Michael Halloran on Watson & Crick's 1953 "The Structure for DNA"

"The April 1953 paper, then, is really just the initial move in a rhetorical strategy aimed at gaining and holding the attention of an audience. As such, it presumes an understanding of *science as a human community* in which neither facts nor ideas speak for themselves, and the attention of the audience must be courted."



## Reality tends to complicate these triangles.

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### Multiple

#### Purposes:

- To explain
- To entertain
- To persuade
- (To get an A)

### Multiple

#### Audiences:

- Yourself
- Imagined reader
- Peers
- Instructors



## Writing and research are complex processes enabled by language.

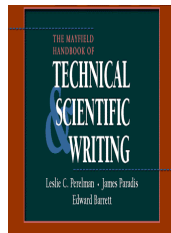
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"Language, oral or written, is an expressive instrument through which we communicate what we have previously thought [or discovered]. It is also the reflective instrument through which we think, alone or with others, about what we are doing." Paul Connolly

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## Good MIT Resources



### *The Mayfield Guide On-Line*

<http://www.mhhe.com/mayfieldpub/tsw/home.htm>

### *The MIT Writing and Communication Center*


Room 12-132; 617/253-3090

Appointments can be made from

<http://web.mit.edu/writing/>.



## Writing Resources on the 20.109 Wiki



OpenWetWare  
Share your science.

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### User:Nlerner

Here are the slides I showed in lab on 9/11 related to writing your report for the first module:  
[Overview of Scientific Writing and Rhetoric](#)

Also, don't forget to check out the [20.109\(F08\):DNA engineering lab report guidelines](#).

The following are helpful places to do further investigation into good writing.

- [The Mayfield Handbook](#) [↗](#)  
A rich resource for any scientific writer.
- [The MIT Writing and Communications Center](#) [↗](#)  
Located in 12-132, the Writing and Communications Center offers free one-to-one instruction on any aspect of writing.
- [The Science of Scientific Writing](#) [↗](#)  
A very useful article that analyzes the structure and style of scientific writing.
- [Writing Up Research](#) [↗](#)  
A fairly comprehensive explanation of the components of the research article from the Asian Institute of Technology.
- [Writing in the Neurobiological Sciences](#) [↗](#)  
A scientific writing course from the University of Florida with many useful links.
- [Writing Guidelines for Engineering and Science Students](#) [↗](#)  
A useful resource on scientific writing from Michael Alley, an engineering education professor at Penn State. Includes many examples and additional links.